

CLAIMS

1. A vehicle drive system, comprising:

5 a rotating electric machine (1) having a structure capable of rotating about an output shaft in a forward direction and in a reverse direction in which torque ripple is smaller than torque ripple in said forward direction; and

a rotation shaft (4) rotating in a direction to move a vehicle forward according to the rotation of said output shaft in the forward direction.

10 2. The vehicle drive system according to claim 1, wherein said rotating electric machine (1) includes

a stator (2), and

a rotor (3) shaped to cause smaller torque ripple when rotating in said reverse direction than in said forward direction.

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3. The vehicle drive system according to claim 2, wherein

said rotor (3) includes a plurality of salient pole portions (12), and each tip portion of said plurality of salient pole portions has a large chipped portion at a corner on the side in the reverse direction relative to a corner on the side in said forward direction.

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4. The vehicle drive system according to claim 1, further comprising:

a direct-current power source (38);

25 an inverter (36) placed on a current feeding and receiving path between said direct-current power source (38) and said rotating electric machine (1); and

a control unit (40) gaining rotation information from said rotating electric machine (1) to control said inverter (36), wherein

said control unit (40) controls said inverter (36) such that torque in said forward

direction is produced in said rotor in response to an acceleration instruction to cause said rotating electric machine (1) to run in a power mode, and torque in said reverse direction is produced in said rotor (3) in response to a deceleration instruction to cause said rotating electric machine (1) to run in a regenerative mode.

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5. The vehicle drive system according to claim 1, further comprising:

a direct-current power source (38);

an inverter (36) placed on a current feeding and receiving path between said direct-current power source (38) and said rotating electric machine (1); and

10 a control unit (40) gaining rotation information from said rotating electric machine (1) to control said inverter (36), wherein

said control unit (40) instructs said inverter (36) to feed a compensation current in accordance with said rotation information so as to reduce torque ripple of said rotating electric machine (1) in a part of a rotation region when in a power running mode of said rotating electric machine (1) to move the vehicle forward.

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6. The vehicle drive system according to claim 5, wherein

said one part of the rotation region is a rotation region which corresponds to a region in which said vehicle runs in a creep state.

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7. A vehicle comprising

a vehicle drive system including

a rotating electric machine (1) having a structure capable of rotating about an output shaft in a forward direction and in a reverse direction in which torque ripple is smaller than torque ripple in said forward direction, and

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a rotation shaft (4) rotating in a direction to move a vehicle forward according to the rotation of said output shaft in the forward direction; and

a wheel (32) connected to said rotation shaft (4).

8. The vehicle according to claim 7, wherein said rotating electric machine (1) includes

a stator (2), and

5 a rotor (3) shaped to cause smaller torque ripple when rotating in said reverse direction than in said forward direction.

9. The vehicle according to claim 8, wherein

10 said rotor (3) includes a plurality of salient pole portions (12), and each tip portion of said plurality of salient pole portions (12) has a large chipped portion at a corner on the side in said reverse direction relative to a corner on the side in said forward direction.

10. The vehicle according to claim 7, wherein said vehicle drive system further includes

a direct-current power source (38),

an inverter (36) placed on a current feeding and receiving path between said direct-current power source (38) and said rotating electric machine (1), and

20 a control unit (40) gaining rotation information from said rotating electric machine (1) to control said inverter (36), wherein

said control unit (40) controls said inverter (36) such that torque in said forward direction is produced in said rotor in response to an acceleration instruction to cause said rotating electric machine (1) to run in a power mode, and torque in said reverse direction is produced in said rotor (3) in response to a deceleration instruction to cause
25 said rotating electric machine (1) to run in a regenerative mode.

11. The vehicle according to claim 7, wherein said vehicle drive system further includes

a direct-current power source (38),
an inverter (36) placed on a current feeding and receiving path between said
direct-current power source (38) and said rotating electric machine (1), and
a control unit (40) gaining rotation information from said rotating electric
5 machine (1) to control said inverter (36), wherein

said control unit (40) instructs said inverter (36) to feed a compensation current
in accordance with said rotation information so as to reduce torque ripple of said
rotating electric machine (1) in a part of a rotation region when in a power running
mode of said rotating electric machine (1) to move the vehicle forward.

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12. The vehicle according to claim 11, wherein said one part of the rotation
region is a rotation region which corresponds to a region in which said vehicle runs in a
creep state.